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ENVIRONMENT

Ms. Betsy Donovan
Remedial Project Manager
United States Environmental Protection Agency, Region 2
New Jersey Remediation Branch
290 Broadway, 19th Floor
New York, NY 10007-1866

Subject:
Response to Comments for the Data Gaps Sampling and Analysis Plan Addendum 1 and Data Gaps Quality Assurance Project Plan Addendum 1
Rolling Knolls Landfill Superfund Site
Chatham, New Jersey

Date:
October 13, 2015

Contact:
Suzanne Walls

Phone:
865.777.3502

Email:
suzy.walls@arcadis-us.com

Our ref:
B0033203.0004

Dear Ms. Donovan:

Enclosed are the revised addenda to the Data Gaps Sampling and Analysis Plan (SAP) and Data Gaps Quality Assurance Project Plan (QAPP). These addenda were initially submitted to the United States Environmental Protection Agency (USEPA) on April 29, 2015. USEPA provided comments and requested revisions in a letter dated June 17, 2015. The revised addenda were resubmitted on August 27, 2015. USEPA provided comments and requested revisions in a letter dated October 5, 2015. Responses to the USEPA's comments are provided below.

Portions of the USEPA's comments were discussed during a conference call held on October 5, 2015. The following participants were present on the conference call: Betsy Donovan (USEPA), Michael Sivak (USEPA), John Persico (Senior Consultant to the Settling Parties), and Suzy Walls (ARCADIS). A subsequent call was held on October 8, 2015 between Betsy Donovan and John Persico. Where applicable, the following responses are based on those calls.

Please contact me at 865.777.3502 if you have any questions.

Sincerely,

ARCADIS U.S., Inc.

Suzanne J. Walls
Project Manager

ARCADIS

Copies:
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EPA's Comments on ARCADIS Addendum 1 to the Data Gaps Sampling and Analysis Plan and the Addendum 1 to the Quality Assurance Project Plan for the Data Gaps Sampling and Analysis Plan, dated August 2015, and the Summary of VOC Results in Soil and Sediment Samples, dated August 26, 2015

Rolling Knolls Landfill Superfund Site, Chatham, New Jersey

Below are EPA's comments to ARCADIS submittal on August 26, 2015, followed by the Settling Parties' responses.

ARCADIS Response to EPA Comments, August 26, 2015

1. Specific Comment 3: EPA agrees that delineation should continue until NJDEP residential and non-residential SRS have been achieved, and not to levels consistent with the Ecological Screening Criteria or Impact to Ground Water numbers. However, areas where contamination is identified below residential and non-residential SRS but above Ecological Screening Criteria or Impact to Ground Water numbers should be noted in the RI report.

Response: The Settling Parties will include a comparison of Ecological Screening Criteria and Impact to Groundwater numbers in the RI Report, as requested.

2. Specific Comment 5 and 6: ARCADIS has proposed to modify the number of intervals per boring at which analytical analysis is run for the perimeter sample locations. The August 26 ARCADIS response to comments letter states that deeper samples at the landfill perimeter and within the landfill will be collected on a contingent basis; if the shallower co-located sample has no exceedances the deeper sample will not be analyzed. It does not appear that this was discussed previously. All samples shall be analyzed and no samples shall be held as contingent.

Response: The Settling Parties will collect all samples and will have them analyzed without holding any samples for contingency.

3. Comment 6. a. Perimeter Locations: ARCADIS has proposed to "collect the samples at each perimeter boring location, as required, from the 0-1 foot core interval, but hold the 1–2 foot core interval for contingency analysis pending results of the shallower soil sample."

The historic data indicates a level of unpredictability in the distribution of contaminants at the site. In consideration of this unpredictability, more than just the surficial interval should be evaluated at the perimeter sampling locations during this phase of the investigation. This is especially so since only surficial samples have been collected in the low lying areas off of the landfill to date. Data do not exist which would enable an extrapolation of sample quality at 1-2 feet below grade to be made based on data quality in samples collected immediately above that zone. In consideration of this, the required samples should be collected and analyzed from both the 0–1 foot interval and the 1–2 foot interval at each boring location. All samples shall be analyzed and no samples shall be held as contingent.

Response: The Settling Parties will collect all perimeter samples and will have them analyzed

without holding any samples for contingency.

4. Comment 6. b. Interior Landfill Samples, Paragraph 3: ARCADIS has proposed to collect the samples as required from a 1 foot core immediately below the bottom of the waste material, but hold the deeper 1 foot core (immediately above the clay layer) pending the results of the shallower soil sample.

There is an indication of increasing contaminant concentrations with depth within the landfill boundaries. The disturbed nature of the filled area over time makes it difficult to assume a consistent vertical contaminant gradient within the boundaries of the landfill. In consideration of this, the required analyses should be run on both the shallower and the deeper 1 foot cored intervals collected from interior landfill boring locations. Thus, all samples shall be analyzed and no samples shall be held as contingent.

Response: The Settling Parties will collect all interior landfill samples and will have them analyzed without holding any samples for contingency.

5. ARCADIS Comment 8: ARCADIS has proposed to sample SD-49 which is located in closer proximity to the landfill from previously sampled SS-164. EPA requested sample SD-47 which is further out from SS-164. If SD-49 is below standards, then ARCADIS would conclude that contamination further out (i.e. SS-164) is not from the landfill. Contingent samples SD-50 and SS-174, further in from SS-49, are proposed as contingency to further evaluate the spatial trend if necessary, and would only be analyzed if SS-49 has exceedances. EPA disagrees with the advance conclusion that if there is a clean sample between SS-164 and the landfill, that this would define the limit of contamination from the landfill. It would tend to rule out that particular flow path, but there could be other flow paths that may have bypassed SS-49. In review of Table 3 and Figure 3b of the SAP, ARCADIS is also proposing similar logic along the sample transect SS-173, SD-48, SS-162, SD-46. Again, EPA disagrees with this logic. All samples shall be analyzed and no samples shall be held as contingent

Response: The Settling Parties will collect all samples and will have them analyzed without holding any samples for contingency.

6. ARCADIS General RI Comment 3b: The response indicates that concentrations in downgradient wells will be compared to concentrations in upgradient wells to determine if the landfill is contributing to groundwater contamination for compounds that are naturally occurring. Will this comparison be statistical? Please provide further details on how the comparison will be conducted.

Response: This comment was discussed with USEPA on October 5, 2015. The Settling Parties will prepare a new groundwater contour map, incorporating the newly surveyed monitoring wells, and will identify well populations including upgradient, landfill, and downgradient wells. This map will be submitted to USEPA for review and agreement on the wells in each population. The Settling Parties and USEPA will then discuss statistical approaches that may be used to evaluate the landfill contributions to the downgradient groundwater constituents, and the analysis and its results will be included in the report on the Data Gaps sampling. Implementation of the remaining Data Gaps sampling will not be delayed due to this review.

Addendum 1 to the Data Gaps Sampling and Analysis Plan, Prepared by ARCADIS (August 2015)

1. Section 2.1.2 Soil Sample Locations: Within the landfill ARCADIS will be drilling to the clay on site; a dual tube or discrete sampler should be used if drilling goes much deeper than the water table to make sure representative samples at depth are collected.

Response: A dual tube or discrete sampler will be used when collecting interior landfill samples (SS-177 through SS-183), as requested.

2. Section 2.2.2 Sediment Sampling Procedures, Paragraph 2: This section describes how the various sediment samples will be collected from each 1 foot core interval at each boring. The way it is presented in the submittal indicates that the top six inches of each core will be analyzed for non-VOC contaminants and the bottom six inches of each core will be analyzed for VOC contaminants. This will result in alternate depths being analyzed for the non-VOC and the VOC parameters. While this is unavoidable for the 0-1 foot cores (due to VOC sample collection protocol) it will play out again in all deeper core samples.

It is requested that ARCADIS clarify if this is consistent with how the historic soil and sediment samples were collected and reported. If so, it would appear that all current surficial non-VOC data are actually from the 0-6 inch interval rather than the 0-1 foot interval that was reported. This needs to be considered when reporting historic and updated data in future reports.

Response: The Settling Parties will collect sediment samples from each of the specified locations at both the 0-1 foot depth interval below grade and the 1-2 foot depth interval below grade. The 6-12 inch interval and 18-24 inch interval will be sampled for the VOC analysis. The remaining sediment volume for each interval (0-1 foot and 1-2 foot) will be homogenized and analyzed for the remaining analytical parameters. This approach is consistent with previous sampling at the Rolling Knolls Landfill Superfund Site.

3. Section 2.2.2 Sediment Sampling Procedures, Paragraph 2: In regard to the proposed intervals to be sampled in each of the borings discussed in this section, there is no mention of sample collection from the 1–2 foot interval below grade. This is not consistent with ARCADIS's August 26, 2015 Response to EPA comments where it was indicated that all perimeter sample locations would have samples collected from both the 0-1 foot depth interval below grade and the 1–2 foot depth interval below grade. Please revise this section to include the 1-2 foot interval as agreed in the Response to Comments.

This section indicated that the 0 to 0.5 foot interval will be homogenized and transferred into sample containers for TCL/TAL analysis without the VOC fraction. It seems that the 0.5 to 1 foot interval where the VOC sample will be collected from should also be included as part of the soil to be homogenized to capture the 0 to 1 foot interval characterization. Please clarify.

Response: See response to Specific Comment #2 above.

4. Addendum 1 to the Data Gaps Sampling and Analysis Plan: Attached is a redline/strikeout copy of the SAP which contains additional edits that should be incorporated as received after review. If there are any discrepancies please contact EPA immediately for resolution.

Response: The Settling Parties have reviewed the redline strikeout copy of the SAP and have incorporated these edits into the revised documents, as requested.

Table 1

1. Table 1, Sampling Locations, Depths, and Analyses: Please provide a revised Table 1 to be consistent with the comments made in regard to number of proposed sample locations, sample interval(s) at each boring location, analytical requirements, etc.

a. PCB congener analyses: PCB congener analyses should be included at location SD-69 for delineation of SS-46, location SD-52 for delineation of SS-39, location SD-57 for delineation of SS-104, and location SD-62 for delineation of locations near the south of the site (i.e. SS-113, SS-101, and SS-105).

b. Dioxin/Furan analyses: Dioxin/furan results were reviewed for the 32 samples that we have in our database from ARCADIS. Dioxin/Furan analysis should be added for the following planned data gap locations:

- SS-168 to delineate elevated readings near POI-10
- SD-53 to delineate elevated readings near SS-39 and SS-128
- SD-63 to delineate elevated readings near SS-101
- SD-57 to delineate elevated readings near SS-104
- SD-62 to delineate elevated readings near SS-105
- SD-61 to delineate elevated readings near SS-113

Response: Table 1 has been updated to include the PCB congener and dioxin/furan analyses requested above.

2. Notes and Footers: Please modify as necessary.

Response: Table 1 footnotes have been updated as necessary.

Figures

1. SAP Figures 3a and 3b and QAPP Figures 2a and 2b: Two locations are designated SS-182 on the site plans; one of these should be SS-183 (DEP-34 and DEP-35). Sample SS-182 on Figure 3b should be labeled SS-183. Please review figures and make the appropriate corrections. Note: Some of the sample identifier numbers in both figures 3a and 3b included with electronic copies of the SAP and QAPP did not convert correctly into the pdf files, these numbers were showing as an empty squares.

Response: Figures 3a and 3b from the SAP and Figures 2a and 2b from the QAPP have been updated as requested.

2. SAP Figure 4: The Project Organizational Chart was not a part of the Addendum 1 Data Gaps Sampling and Analysis Plan. This addition was not discussed with EPA or approved for incorporation

into the revised document. Please delete figure.

Response: Figure 4 from the SAP has been included in previous versions of the Addendum 1 to the Data Gaps Sampling and Analysis Plan. The figure has been updated with the appropriate titles and contact information for the Rolling Knolls project.

Addendum 1 to the Quality assurance Project Plan for the Data Gaps Sampling and Analysis Plan, Prepared by ARCADIS (August 2015)

1. QAPP Worksheet #14/16 Project Tasks and Schedule: This does not address the pore water sample that was aborted at the MW-13 location. The schedule appears to be comprehensive with this exception. Please clarify the Group's plan to collect an aqueous sample at this location.

Response: Pore water sampling at the aborted MW-13 location has been added to the project tasks and schedule in Worksheet #14/16.

2. QAPP Worksheet #17 - Description of the sampling area (second bullet item): ARCADIS has designated several of the perimeter samples as sediment samples even though they are located in zones that are not portrayed on the figures as being inundated. EPA request that the type of boring advancement and sample collection technique employed (soil vs sediment) for the perimeter samples be determined at the time of sample collection. This is consistent with Section 2.1.1 of the updated Addendum 1 to the Data Gaps SAP (5th paragraph). Please update the narrative in all documents and the relevant tables and worksheets to reflect this.

If there is a specific reason for treating these sample locations different from others in the same areas, please provide the reasoning.

Response: Worksheet #17 has been updated to reflect the potential change in matrix.

3. QAPP Worksheet #17 – Sample locations – Soil Samples a: It is not apparent that the narrative in this section in regard to the number of samples to be collected matches what is included on Worksheet #18. Please update the narrative in all documents and the relevant tables and worksheets to accurately reflect the Data Gap sampling proposals, including any changes that are necessary to accommodate EPA comments on this submittal.

Response: The number of soil sample locations in Worksheet #17 have been updated to reflect the changes requested in the USEPA comments.

4. QAPP Worksheet #17 – Sample locations – Sediment samples b: It is not apparent that the narrative in this section in regard to the number of samples to be collected matches what is included on Worksheet #18. Please update the narrative and the relevant tables and worksheets to accurately reflect the proposals, including any changes that are necessary to accommodate EPA comments on this submittal.

Response: The number of sediment sample locations in Worksheet #17 have been updated to reflect the changes requested in the USEPA comments.

5. QAPP Worksheet #18 - Matrix: It is noted that ARCADIS has designated several of the perimeter samples on this worksheet as sediment samples even though they are located in areas that are not portrayed on the figures as being inundated. EPA request that the type of boring advancement and sample collection technique employed (soil vs sediment) for the perimeter samples be determined at the time of sample collection. This is consistent with Section 2.1.1 of the updated Addendum 1 to the Data Gaps SAP (5th paragraph). Please update Worksheet #18 to reflect this.

If there is a specific reason for treating these sample locations different from others in the same areas, please provide the reasoning.

Response: Worksheet #18 has been updated to reflect the potential change in matrix.

6. QAPP Worksheet #18: For interior landfill Samples SS-177 through SS-183, it noted that the depth for these samples is TBD. While this is acceptable, it is requested that perhaps a footnote be added to briefly explain how the depths will be determined (i.e. the first foot beneath the waste material at each boring location and a second one foot sample collected directly above the underlying clay layer).

Response: A footnote has been added to Worksheet #18, as requested.

7. QAPP Worksheet #18: The depth proposed for samples SD-45 through SD-69 is not consistent with either EPA's August 17, 2015 correspondence, or with the ARCADIS's August 26, 2015, responses to EPA. Worksheet #18 does not include the samples required to be collected at the 1- 2 foot interval below grade which were discussed in the referenced correspondences. Please update the worksheet to reflect the correct boring depth and sampled intervals.

It is also requested that the "type" of sample collection technique listed in the worksheet for SD-45 through SD-69 (Grab Sample) be clarified. The collection techniques mentioned in the August 2015 Addendum 1 to the Data Gaps SAP for these samples include the use of either a dedicated Lexan coring device or stainless steel Macrocore sampler. It is suggested that the "Type" column for these sample locations in the worksheet be updated to be consistent with the sampling technique proposal included in the Data Gaps SAP which references specific coring devices.

Since all samples are to be analyzed, please remove all references to contingent samples.

Response: The Settling Parties will collect sediment samples from the 0-1 foot below grade interval and the 1-2 foot below grade interval. Worksheet #18 has been updated accordingly. The "Type" column for these samples will be updated to "Lexan or Macrocore sampler." Table 1 in the SAP Addendum has also been updated to reflect this change.

8. QAPP Worksheet 20 Field QC Summary: No QA/QC is proposed for PCB congeners, except a field blank. Although only two samples, both from one location are proposed, it has been several months since this parameter has been analyzed. Full QA/QC is recommended. Please add a field duplicate, matrix spike and matrix spike duplicate.

Response: Additional PCB congener analysis has been requested by USEPA at four locations, in addition to the two previous samples proposed (see Comment 1.a. on Table 1, above). As a result, the Settling Parties have added four QA/QC samples to Worksheet #20.

Summary of VOC Results in Soil and Sediment Samples, Prepared by ARCADIS August 26, 2015

1. General Comment 1: ARCADIS proposed to "Restrict the VOC analysis to the soil samples to be collected within the interior of the landfill (SS-177 through SS-183); and to landfill perimeter samples (SD-61 and SD-62)". EPA is in agreement that VOCs should be analyzed in data gap samples collected near POI-3 and SS-109, which have historically showed VOC concentrations in excess of screening levels. EPA recommends that VOCs be analyzed in data gap samples collected near SS-103, which had concentrations of VOCs in excess of screening levels because this location is very near MW-1, which had detections of benzene. EPA also recommends that VOCs be analyzed in data gaps samples collected around MW-10, which also historically had concentrations of VOCs above screening levels. EPA recommends VOC sampling at SS-168 which is in proximity of MW-10.

ARCADIS has designated perimeter samples SD-61 and SD-62 as sediment samples even though they are located in an area that is not portrayed on the figures as being inundated. We request that the type of boring advancement and sample collection technique (soil vs sediment) for these locations be determined at the time of sample collection.

Response: As discussed with USEPA on October 5, 2015 and October 8, 2015, the Settling Parties will conduct VOC analysis on existing samples SD-61, SD-62, and SS-168 (each at two depth intervals; 6-12 inches below grade and 18-24 inches below grade). In addition, the Settling Parties will collect eight surface soil samples (6-12 inches below grade) to investigate VOC concentrations in soil near monitoring wells MW-3 and MW-10. These eight samples include SS-184 through SS-186 in the vicinity of MW-10 and SS-187 through SS-191 in the vicinity of MW-3. All sample locations are shown on Figures 3a and 3b in the Data Gaps SAP Addendum 1.